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GATES & COOPER LLP
HOWARD HUGHES CENTER
6701 CENTER DRIVE WEST, SUITE 1050
LOS ANGELES, CA 90045

EXAMINER	
NGUYEN, PHU K	

ART UNIT	PAPER NUMBER
2628	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/642,857	ROY ET AL.	
	Examiner	Art Unit	
	Phu K. Nguyen	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D: 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Phu Nguyen

PHU K. NGUYEN
PRIMARY EXAMINER
GROUP 2300

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Attachment: 60/025,528*.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over GOODENOUGH et al. (Queries and Their Application to Reasoning with Remote Sensing and GIS) in view of DRUTMAN et al. (Marine Geophysics Modeling With Geographic Information Systems), and further in view of Alexander (6,083,353).

As per claim 1, Goodenough teaches the claimed "method of obtaining a map in a computer graphics program" comprising: "receiving a request for a map picture" (Goodenough, the query to request a map that shows the forest depletion over past 20 years; page 1201, column 2, lines 55-58); "obtaining a map file in response to the request" (Goodenough, a map file comprises the GIS files of the desired site dated 20 years ago, the thematic mapper (TM) and color infra-red geocoded imagery over the site; page 1201, column 2, lines 60-62); "determining, from the map file, a location of map data" (Goodenough, to determine the location of the map data related to the areas representing depleted forest cover; page 1201, column 2, lines 64-66), "wherein the map data defines one or more map objects of the map picture" (Goodenough, the depleted forest cover is the map object of the map picture; page 1201, column 2, lines 64-66); and "obtaining the map data from the location, wherein the obtained map data

satisfies the request for the map picture" (Goodenough, the data from the thematic mapper is obtained to satisfy the request for the map showing the forest depletion over past 20 years; page 1203, column 1, lines 11-12). It is noted that although Goodenough teaches the GIS data in both of raster and vector formats (Abstract, lines 1-3); Goodenough does not explicitly teach that the obtained map data is "vector based" map data. However, Drutman teaches that the feature map information, such as Goodenough's depleted forest data, is preferably represented in vector based format (Drutman, representation of feature/attribute; Table II, page III-529). Furthermore, Alexander teaches that a map file containing vector-based objects defines a specific object on the map can be obtained from the Internet or World Wide Web which communicates through Uniform Resource Locators (URLs) (Alexander, column 1, lines 25-28 and the communication device 26 in figure 3, column 12, lines 29-33 or column 5, lines 57-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-based objects communicated through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

Claim 2 adds into claim 1 "wherein only the map data required to satisfy the request is obtained" which Goodenough teaches in the obtain of the depleted forest cover (Goodenough, the data from the thematic mapper is obtained to satisfy the request for the map showing the forest depletion over past 20 years; page 1203, column 1, lines 11-12). It is noted that although Goodenough teaches the GIS data in both of raster and vector formats (Abstract, lines 1-3); Goodenough does not explicitly teach that the obtained map data is "vector based" map data. However, Drutman teaches that the feature map information, such as Goodenough's depleted forest area, is prefera! bly represented in vector based format (Drutman, representation of feature/attribute; Table II, page III-529). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format because the vector based data for the features or attributes of an area provides more convenient process than the raster format (Drutman, page III-528, column 2, lines 28-30).

Claim 3 adds into claim 1 "displaying the map picture" which Goodenough does not explicitly teach. However, Drutman teaches in the commands in plan A for displaying the requested image of the map showing the forest depletion over past 20 years (depletion-overlay(Site,Time); page 1202, column 1, lines 54-63). It would have

been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by display the map representing the area's features because the visual representation of data on a screen enhances the understanding of user to the meaning of information (Drutman, page 1202, column 1, lines 54-63).

Claim 4 adds into claim 1 "the vector based map data is obtained from a map server across a network connection" which the references of Goodenough, and Drutman do not teach. However, Alexander teaches that a map file containing vector-based objects defines a specific object on the map can be obtained from the Internet or World Wide Web which communicates through Uniform Resource Locators (URLs) (Alexander, column 1, lines 25-28 and the communication device 26 in figure 3, column 12, lines 29-33 or column 5, lines 57-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-based objects communicated through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

Claim 5 adds into claim 1 "creating the map file" which Goodenough teaches in the creating and saving a file of the map that shows the forest depletion over past 20 years (save-map(forest-depletion-cover-level); page 1202, column 1, lines 54-63).

Claim 6 adds into claim 1 "setting map display properties and a level of interaction" which Goodenough teaches in the settings of display properties and levels in a file of the map! that shows the forest depletion over past 20 years (set-level(forest-level); page 1202, column 1, lines 54-63, segment(color_ir_image); and label_segment(color-ir-image), page 1203, column 1, lines 6-7).

Claim 7 adds into claim 1 "wherein the claim steps are performed by a browser plug-in" which both of Goodenough and Drutman do not teach. However, Alexander teaches that a map file containing vector-based objects defines a specific object on the map can be obtained from the Internet or World Wide Web which communicates through Uniform Resource Locators (URLs) (Alexander, column 1, lines 25-28 and the communication device 26 in figure 3, column 12, lines 29-33 or column 5, lines 57-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location

in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-based objects communicated through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

As per claim 8, Goodenough teaches the claimed "apparatus for obtaining a map computer-implemented graphics system" comprising "(a) a computer" (Goodenough, the SEIDAM intelligent system; page 1199, column 1, lines 41-46); "(b) an application executing on the computer" (Goodenough, the problem solver is written in Prolog; page 1203, column 1, lines 32-34), wherein the application is configured to: "receive a request for a map picture" (Goodenough, the query to request a map that shows the forest depletion over past 20 years; page 1201, column 2, lines 55-58); "obtain a map file" (Goodenough, a map file comprises the GIS files of the desired site dated 20 years ago, the thematic mapper (TM) and color infra-red geocoded imagery over the site; page 1201, column 2, lines 60-62); "determine, from the map file, a storage location of map data" (Goodenough, to determine the location of the map data related to the areas representing depleted forest cover; page 1201, column 2, lines 64-66), "wherein the map data defines one or more map objects of the map picture" (Goodenough, the depleted forest cover is the map object of the map picture; page 1201, column 2, lines

64-66); and "obtain the map data from the location, wherein the obtained map data satisfies the request for the map picture" (Goodenough, the data from the thematic mapper is obtained to satisfy the request for the map showing the forest depletion over past 20 years; page 1203, column 1, lines 11-12). It is noted that although Goodenough teaches the GIS data in both of raster and vector formats (Abstract, lines 1-3); Goodenough does not explicitly teach that the obtained map data is "vector based" map data. However, Drutman teaches that the feature map information, such as Goodenough's depleted forest area, is preferably represented in vector based format (Drutman, representation of feature/att! ribute; Table II, page III-529). Furthermore, Alexander teaches that a map file containing vector-based objects defines a specific object on the map can be obtained from the Internet or World Wide Web which communicates through Uniform Resource Locators (URLs) (Alexander, column 1, lines 25-28 and the communication device 26 in figure 3, column 12, lines 29-33 or column 5, lines 57-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-based objects communicated

through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

Claim 9 adds into claim 8 "wherein only the map data required to satisfy the request is obtained" which Goodenough teaches in the obtain of the depleted forest cover (Goodenough, the data from the thematic mapper is obtained to satisfy the request for the map showing the forest depletion over past 20 years; page 1203, column 1, lines 11-12). It is noted that although Goodenough teaches the GIS data in both of raster and vector formats (Abstract, lines 1-3); Goodenough does not explicitly teach that the obtained map data is "vector based" map data. However, Drutman teaches that the feature map information, such as Goodenough's depleted forest area, is prefera! bly represented in vector based format (Drutman, representation of feature/attribute; Table II, page III-529). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format because the vector based data for the features or attributes of an area provides more convenient process than the raster format (Drutman, page III-528, column 2, lines 28-30).

Claim 10 adds into claim 8 "displaying the map picture" which Goodenough does not explicitly teach. However, Drutman teaches in the commands in plan A for

displaying the requested image of the map showing the forest depletion over past 20 years (depletion-overlay(Site,Time); page 1202, column 1, lines 54-63). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by display the map representing the area's features because the visual representation of data on a screen enhances the understanding of user to the meaning of information (Drutman, page 1202, column 1, lines 54-63).

Claim 11 adds into claim 8 "the vector based map data is obtained from a map server across a network connection" which both of Goodenough and Drutman do not teach. However, Alexander teaches that a map file containing vector-based objects defines a specific object on the map can be obtained from the Internet or World Wide Web which communicates through Uniform Resource Locators (URLs) (Alexander, column 1, lines 25-28 and the communication device 26 in figure 3, column 12, lines 29-33 or column 5, lines 57-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-

based objects communicated through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

Claim 12 adds into claim 8 "creating the map file" which Goodenough teaches in the creating and saving a file of the map that shows the forest depletion over past 20 years (save-map(forest-depletion-cover-level); page 1202, column 1, lines 54-63).

Claim 13 adds into claim 8 "setting map display properties and a level of interaction" which Goodenough teaches in the settings of display properties and levels in a file of the map! that shows the forest depletion over past 20 years (set-level(forest-level); page 1202, column 1, lines 54-63, segment(color_ir_image); and label_segment(color-ir-image), page 1203, column 1, lines 6-7).

Claim 14 adds into claim 8 "wherein the claim steps are performed by a browser plug-in" which both of Goodenough and Drutman do not teach. However, Alexander teaches that a map file containing vector-based objects defines a specific object on the map can be obtained from the Internet or World Wide Web which communicates through Uniform Resource Locators (URLs) (Alexander, column 1, lines 25-28 and the communication device 26 in figure 3, column 12, lines 29-33 or column 5, lines 57-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure

Goodenough's method as claimed by storing the map representing the area's features in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-based objects communicated through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

As per claim 15, Goodenough teaches the claimed "article of manufacture embodying logic that causes a computer-implemented graphics system to obtain a map" comprising: "receiving a request for a map picture" (Goodenough, the query to request a map that shows the forest depletion over past 20 years; page 1201, column 2, lines 55-58); "obtaining a map file" (Goodenough, a map file comprises the GIS files of the desired site dated 20 years ago, the thematic mapper (TM) and color infra-red geocoded imagery over the site; page 1201, column 2, lines 60-62); "determining, from the map file, a storage location of map data" (Goodenough, to determine the location of the map data related to the areas representing depleted forest cover; page 1201, column 2, lines 64-66), "wherein the map data defines one or more map objects of the map picture" (Goodenough, the depleted forest cover is the map object of the map picture; page 1201, column 2, lines 64-66); and "obtaining the map data from the

location, wherein the obtained map data satisfies the request for the map picture" (Goodenough, the data from the thematic mapper is obtained to satisfy the request for the map showing the forest depletion over past 20 years; page 1203, column 1, lines 11-12). It is noted that although Goodenough teaches the GIS data in both of raster and vector formats (Abstract, lines 1-3); Goodenough does not explicitly teach that the obtained map data is "vector based" map data. However, Drutman teaches that the feature map information, such as Goodenough's depleted forest area, is preferably represented in vector based format (Drutman, representation of feature/att! ribute; Table II, page III-529). Furthermore, Alexander teaches that a map file containing vector-based objects defines a specific object on the map can be obtained from the Internet or World Wide Web which communicates through Uniform Resource Locators (URLs) (Alexander, column 1, lines 25-28 and the communication device 26 in figure 3, column 12, lines 29-33 or column 5, lines 57-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-based objects communicated through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

Claim 16 adds into claim 15 "wherein only the map data required to satisfy the request is obtained" which Goodenough teaches in the obtain of the depleted forest cover (Goodenough, the data from the thematic mapper is obtained to satisfy the request for the map showing the forest depletion over past 20 years; page 1203, column 1, lines 11-12). It is noted that although Goodenough teaches the GIS data in both of raster and vector formats (Abstract, lines 1-3); Goodenough does not explicitly teach that the obtained map data is "vector based" map data. However, Drutman teaches that the feature map information, such as Goodenough's depleted forest area, is prefera! bly represented in vector based format (Drutman, representation of feature/attribute; Table II, page III-529). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format because the vector based data for the features or attributes of an area provides more convenient process than the raster format (Drutman, page III-528, column 2, lines 28-30).

Claim 17 adds into claim 15 "displaying the map picture" which Goodenough does not explicitly teach. However, Drutman teaches in the commands in plan A for displaying the requested image of the map showing the forest depletion over past 20 years (depletion-overlay(Site,Time); page 1202, column 1, lines 54-63). It would have

been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by display the map representing the area's features because the visual representation of data on a screen enhances the understanding of user to the meaning of information (Drutman, page 1202, column 1, lines 54-63).

Claim 18 adds into claim 15 "the vector based map data is obtained from a map server across a network connection" which both of Goodenough and Drutman do not teach. However, Alexander teaches that a map file containing vector-based objects defines a specific object on the map can be obtained from the Internet or World Wide Web which communicates through Uniform Resource Locators (URLs) (Alexander, column 1, lines 25-28 and the communication device 26 in figure 3, column 12, lines 29-33 or column 5, lines 57-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-

based objects communicated through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

Claim 19 adds into claim 15 "creating the map file" which Goodenough teaches in the creating and saving a file of the map that shows the forest depletion over past 20 years (save-map(forest-depletion-cover-level); page 1202, column 1, lines 54-63).

Claim 20 adds into claim 15 "setting map display properties and a level of interaction" which Goodenough teaches in the settings of display properties and levels in a file of the map! that shows the forest depletion over past 20 years (set-level(forest-level); page 1202, column 1, lines 54-63, segment(color_ir_image); and label_segment(color-ir-image), page 1203, column 1, lines 6-7).

Claim 21 adds into claim 15 "wherein the claim steps are performed by a browser plug-in" which both of Goodenough and Drutman do not teach. However, Alexander teaches that a map file containing vector-based objects defines a specific object on the map can be obtained from the Internet or World Wide Web which communicates through Uniform Resource Locators (URLs) (Alexander, column 1, lines 25-28 and the communication device 26 in figure 3, column 12, lines 29-33 or column 5, lines 57-65). It would have been obvious to a person of ordinary skill in the art at the time the invention was made, in view of the teaching of Drutman and Alexander, to configure Goodenough's method as claimed by storing the map representing the area's features

in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-based objects communicated through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

RESPONSE TO APPLICANT'S ARGUMENTS:

Applicant's arguments filed April 24, 2006 have been fully considered, but they are not deemed to be persuasive. The following are Examiner's response to each of Applicant's arguments:

(1) Goodenough, Drutman, and Alexander do not teach, disclose, or suggests a map file that provides a uniform resource locator.

Uniform Resource Identifiers (URIs, aka URLs) are short strings that identify resources in the web: documents, images, downloadable files, services, electronic mailboxes, and other resources. They make resources available under a variety of naming schemes and access methods such as HTTP, FTP, and Internet mail addressable in the same simple way. They reduce the tedium of "log in to this server, then issue this magic command ..." down to a single click. Applicant's application refers to the display a map in which the map objects' information is a vector based map data which is provided through sources in the web using URLs. Goodenough teaches a map with its objects

(Goodenough, the data from the thematic mapper is obtained to satisfy the request for the map showing the forest depletion over past 20 years; page 1203, column 1, lines 11-12); Drutman specifically teaches Goodenough's objects is vector based map data (Drutman, representation of feature/attribute; Table II, page III-529); and Alexander teaches the map data is accessed through Internet which is addressed through Uniform Source Locator (Alexander, a map database is stored as a bit map or as vectors that point to a map character in a memory storage device which is remotely accessed through Internet using USLs; column 5, lines 57-65).

(2) Goodenough, Drutman, and Alexander do not teach, disclose, or suggests a map file that provides a uniform resource locator that identifies a storage of vector based map data.

Alexander teaches the map data is accessed through Internet as showed above (column 5, lines 57-65). It is a standard access of data in Internet using USL. Uniform Resource Identifiers (URIs, aka URLs), by definition, are short strings that identify resources in the web: documents, images, downloadable files, services, electronic mailboxes, and other resources. They make resources available under a variety of naming schemes and access methods such as HTTP, FTP, and Internet mail addressable in the same simple way. Alexander, clearly states that "a map database is stored as a bit map or as vectors that point to a map character in a memory storage device" (column 1, lines 26-28); and the memory storage is remotely accessed through Internet's locations (column 5, lines 57-65). It is clearly the combination of

Goodenough, Drutman, and Alexander teaches a map file that provides a uniform resource locator that identifies a storage of vector based map data.

(3) Goodenough, Drutman, and Alexander do not teach, disclose, or suggests the ability to determine a storage location of vector map data that defines a map object for a requested map picture.

All of the cited references teach the representation of a map on a screen in which the map picture is vector based data (Drutman, representation of feature/attribute; Table II, page III-529; Alexander, column 1, lines 26-28). To display the map, the systems must have ability to determine where is the displayed information located, or the storage location of map data. It is clear that the cited references have "the ability to determine a storage location of vector map data that defines a map object for a requested map picture."

(4) Goodenough, Drutman, and Alexander do not teach, disclose, or suggests obtaining vector based map data from a storage location wherein the vector based map data satisfies a request for map picture.

Again, all of the cited references teach the representation of a map on a screen in which the map picture is vector based data (Drutman, representation of feature/attribute; Table II, page III-529; Alexander, column 1, lines 26-28). To display the map, the systems must request data of a map picture from a memory or memory location for display. It is clear that the cited references teach "obtaining vector based

map data from a storage location wherein the vector based map data satisfies a request for map picture."

(5) There is no motivation to combine the cited references.

The modification of the Goodenough's teach to configure the claimed invention is implemented by storing the map representing the area's features in a vector format (Drutman, page III-528, column 2, lines 28-30) in a location in memory identifiable by its URLs for communicating in World Wide Web (Alexander, connection of the system to Internet, column 12, lines 29-33). The motivation for storing the map representing the objects in a vector format in a location in memory identifiable by its URLs is the simplicity of map file with its vector-based objects communicated through their URLs and the richness of resource provided in the Internet (Alexander, column 5, lines 57-65).

(6) Alexander is not a valid reference with respect to the present invention.

Alexander claims benefit of its filing date through its provisional application 60/025,528 which has its filing date September 6, 1996 predated the present application effective filing date (October 30, 1996). In its provisional application, Alexander teaches the vector map data (page 1, line 17-18), access data through Internet (page 6, lines 19-20; page 7, lines 5-7). Examiner attaches a copy of the US provisional application serial number 60/025,528.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (571) 272 7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phu K. Nguyen
July 8, 2006

PHU K. NGUYEN
PRIMARY EXAMINER
GROUP 2300

PATENT APPLICATION SERIAL NO. 60/025,528

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

To Copy. clerk,

Please copy this provisonal applicatia and mail to Applicant by his request.

Thanks.

PTO-1556
(5/87)

DESCRIPTION

HANDHELD PORTABLE DIGITAL GEOGRAPHIC DATA MANAGER

Background of the Invention

It is often necessary for insurance adjusters, geophysicists, construction workers, real estate developers, and others working in the field to gather and assimilate geographic, topographic, visual (*i.e.*, photographic), and other information about a site. These sites may be in locations which are remote and/or have no readily available access to computers or even power sources. Currently, there is no handheld portable device for gathering and processing such information.

Printed maps are available for viewing almost all features that have geographical locations. A limitation of printed maps is that a user must manually sort through the entire map in order to find the relevant geographical features. Electronic maps have recently become available to replace paper maps for some applications. A map database is stored in a memory storage device as a bit map or as vectors that point to a map character.

Many electronic location determination systems are available or have been proposed to provide electronic location information to a user equipped with a location determination receiver. Ground-based location determination systems are well known and include systems that were developed primarily for communications, such as cellular telephone, FM broadcast, and AM broadcast.

The Global Positioning System (GPS) is a global navigation system that enables the user to utilize signals broadcast from satellites in order to identify positions. GPS systems are well known and widely used to accurately locate specific positions. GPS systems, which utilize a network of satellites to identify locations on the ground, are widely used in automotive and nautical navigation, construction, mining, and farming, as well as in a variety of other applications. See, for example, U.S. Patent No. 5,528,248 and PCT Application No. WO 95/05686. Other satellite

positioning systems, such as the Global Orbiting Navigational System (GLONASS) are also known. Cartographers, utilities operators, wildlife managers, and others have used GPS technology in conjunction with Geographical Information Systems (GIS) to augment map making procedures and other field work, particularly in remote locations. In such applications, there has been an increasing use of computers to facilitate data storage and retrieval.

Personal Digital Assistant (PDA) is a generic name for a handheld personal computing device having a volume in the range of about 200 to 1200 cubic centimeters. PDAs can have as much computing power as some desktop personal computers and have been used in a wide variety of applications, including mapping.

Unfortunately, hardware and software hurdles have limited the ability to utilize multicomponent data gathering systems in the field. Connecting equipment such as a GPS, a two-way radio, and a handheld pen computer for use in the field poses a number of obstacles. Many wires and cables work fine on a desktop computer but not on a handheld device. The essence of the subject invention is the development of a rugged, fully-integrated, easy to use handheld multicomponent field data gathering system for gathering positional, image, and other data, and simultaneously processing this information.

Brief Summary of the Invention

The subject invention concerns methods and devices which aid in collecting and verifying planning and engineering field data. The devices of the subject invention are handheld portable personal digital assistants (PDAs). The PDAs of the subject invention are designed to meet the needs of, for example, the construction and utility industry. The methods and devices of the subject invention are also applicable to other tasks such as environmental sampling, agricultural field data collection, property appraisal, and construction inspection. Specific applications include the gas, water, sewer, telephone, and cable TV utilities; in local, state, and federal government inspection agencies; and in the insurance and transportation industries.

The PDAs of the subject invention comprise multiple components interfaced with a central processing unit (CPU). Preferably, these multiple components include a digital camera, a GPS processing component, wireless radio communication capability, a digital compass with inclinometer, and user interaction capability. In a preferred embodiment of the subject invention, the PDA comprises at least two digital cameras which facilitate the determination of the distance from the PDA to an object. The digital compass and inclinometer of the PDA enable the determination of the orientation of the camera so that the exact location of an object which appears in the images from the digital cameras can be readily determined.

In a preferred embodiment of the subject invention, the PDA comprises capability for wireless transmission of data to a host computer at a remote location. The PDA of the subject invention can further comprise a touch screen controller and/or a voice controller. The PDA of the subject invention further comprises a power source. This power source may be, for example, a battery pack and any necessary electrical components to modulate the current so that it is compatible with the requirements of the various data gathering and processing components.

In a preferred embodiment, the integrated handheld field digital data mapping device of the subject invention is capable of:

(1) collecting and mapping global position system (GPS) data;

(2) reporting GPS location, speed, and direction in a seamless fashion;

(3) reporting orientation including magnetic direction, pitch, and roll;

(4) collecting multiple pairs of color digital images (photographs) used to measure distance to an object;

(5) voice command and voice query;

(6) touch sensitive icon control;

(7) providing icon-driven notes relating to field observations;

(8) two-way wireless data transfer with host database station;

(9) mapping the present environment in points, lines, and area features; and

(10) providing navigation assistance to a desired location.

Brief Description of the Drawings

Figure 1 is a block diagram showing the components of one embodiment of the device of the subject invention.

Figure 2 is a schematic showing the determination of the distance to an object from the device of the subject invention using the images produced by two digital cameras.

Figure 3 is a schematic of the embedded controller processor system.

Figure 4 is a schematic of the digital compass and inclinometer.

Figure 5 is a schematic of the flash memory subsystem.

Figure 6 is a schematic of the GPS receiver subsystem.

Figure 7 is a schematic of the LCD display subsystem.

Figure 8 is a schematic of the touch screen interface and module.

Figure 9 is a schematic of the stereo digital camera subsystem.

Figure 10 is a schematic of the digital stereo range finder subsystem.

Figure 11 is a schematic of the voice command subsystem.

Figure 12 is a schematic of the wireless network interface.

Detailed Disclosure of the Invention

The subject invention provides materials and methods which are highly advantageous in collecting and utilizing field data for use in a wide variety of applications. The personal digital assistant (PDA) of the subject invention is a multi-component system for gathering positional, image, and other data, and simultaneously processing this information. The subject invention is also applicable to other tasks such as construction and utility monitoring, environmental sampling, agricultural field data collection, and property appraisal. Specific applications include the gas, water, sewer, telephone, and cable TV utilities; in local, state, and federal government inspection agencies; and in the insurance and transportation industries.

The handheld data gathering device of the subject invention can, in a preferred embodiment, comprise:

(f) Stereo image processing software or hardware algorithms capable of locating a selected object in one image in the stereo image pair. Once the object is located in the stereo pair image the displacement between the two objects is used in conjunction with the optical characteristics of the lenses and the spacing of the lenses to calculate distance to the object of interest. Accuracy of plus or minus one inch is achieved at fifteen feet, and about plus or minus a foot at thirty feet can be readily achieved using lenses which are only about nine inches apart. The distance accuracy drops off as the distance increases; however, longer range accuracy is achieved by sliding the cameras out to a wider spacing and/or attaching telephoto lenses to the cameras. For example, a 2x telephoto lens makes the accuracy plus or minus one inch at 30 feet. The PDA can be made with lenses spaced at nine inches to keep the handheld unit small; however, when extended to 18 inches the accuracy is increased. The PDA can have a horizontal resolution of 496 pixels. Image sensors with a higher resolution also increase distance accuracy. For maximum distance accuracy a higher resolution sensor is used in conjunction with widely spaced lenses and telephoto lenses

(g) Data stored in the system may be sent to a base unit via a wireless network made up of two-way digital packet radios. Alternatively, data can be exchanged via an infrared link, a serial cable, a wired network connection, a PC Card, or a floppy disk.

In a preferred embodiment, the PDA of the subject invention utilizes a pair of digital cameras which are not only able to provide photographic images of sites of interest but also to facilitate the determination of the distance from the PDA to any object in the images produced by the digital cameras. The distance determination is carried out by the PDA utilizing a software program which compares the images produced by the two cameras in order to determine the distance apart a single object is in the two images. This distance apart in the images is directly proportional to the distance that the object is from the PDA. Through a series of straightforward

computational steps, the PDA of the subject invention analyzes the distance between the object's images and converts this to the distance from the PDA to the object. The PDA simultaneously records the pitch and roll of the PDA as determined by an inclinometer, and it records the magnetic direction of the PDA as determined by a digital compass. This information, together with the GPS information, are all processed essentially simultaneously by the CPU and can be transmitted to a remote host computer by wireless communication components.

The PDA of the subject invention further comprises a display screen and a means for the operation to interact with the PDA. This means of interaction may be, for example, by a touch screen or by voice recognition.

A person skilled in this art having the benefit of the instant disclosure would readily appreciate that a variety of modifications could be made to the specific embodiments exemplified herein without departing from the spirit of the instant invention. For example, the GPS function of the PDA is for the purpose of providing a location for the PDA. This function could be performed by other locating means including, but not limited to, other satellite positioning systems and ground-based systems. Certainly, when the device of the subject invention is to be used indoors or in the vicinity of tall buildings, it may be advantageous to use a ground-based location system rather than a satellite system. Also, the device could display a map which the user could touch or in some other way designate the location of the PDA. In yet another embodiment, the PDA may be stationary, in which case its position will be known.

Another embodiment of the subject invention utilizes more than two cameras in order to provide enhanced spatial determination of an object. In another embodiment, the cameras of the subject invention can be moved to increase the distance between the lenses so as to enhance the accuracy of distance determinations, especially for objects located at a substantial distance from the PDA. The moveable camera lenses can be retractable to their original position for convenience. The camera may utilize wide-angle lenses for objects close to the PDA.

the user is processed. This leaves the operator's hand free for other tasks. The voice command and control also aids in poor visibility situations and for users with visual handicaps.

Example 2 — Measurement of Remote Objects

Objects of interest can be measured in the field by touching two points on one picture and letting the system calculate a three dimensional coordinate for each point from the direction, pitch, and roll data , lens characteristics and lens spacing. Distance between points can be calculated. All of the data is stored with the stereo pair of images for future processing with similar software on a desktop computer and/or if the user desires to capture more detailed information from the photo.

Example 3 — Three Dimensional Digitizing of Objects

As the user points the data collector unit in the direction of an object of interest the GPS is providing location coordinates, the system is also monitoring the direction pitch and roll of the stereo pair of cameras. Once the relative three dimensional coordinate for the object under study is calculated from the stereo data and the three dimensional heading of the camera the actual location of the object is calculated and recorded.

Example 4 — Mapping Objects in the Field

The coordinate derived for the objects located in the stereo pairs of images is used to construct a geographic information system map layer. Each object can have attribute data stored with it including a photo of the object, its dimensions, and other attribute data the user desires to include. For example a verbal description can be digitized by the voice processor for a tag attribute or an icon driven system can be used to capture field observations.

Applicant or Patentee: John Alex r Attorney's
Serial or Patent No.: Docket No. UF-169P
Filed or Issued:
For: Handheld Portable Digital Geographic Data Manager

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9 (f) and 1.27 (c)) — NONPROFIT ORGANIZATION

I hereby declare that I am an official empowered to act on behalf of the nonprofit organization identified below:

NAME OF ORGANIZATION University of Florida
ADDRESS OF ORGANIZATION 223 Grinter Hall
Gainesville, FL 32611

TYPE OF ORGANIZATION

[X] UNIVERSITY OR OTHER INSTITUTION OF HIGHER EDUCATION
[ ] TAX EXEMPT UNDER INTERNAL REVENUE SERVICE CODE (26 USC 501(a)(3))
[ ] NONPROFIT SCIENTIFIC OR EDUCATIONAL UNDER STATUTE OF STATE OF THE UNITED STATES OF AMERICA
(NAME OF STATE)
(CITATION OF STATUTE)
[ ] WOULD QUALIFY AS TAX EXEMPT UNDER INTERNAL REVENUE SERVICE CODE (26 USC 501(a) and 501(c)(3) IF LOCATED IN THE UNITED STATES OF AMERICA
[ ] WOULD QUALIFY AS NONPROFIT SCIENTIFIC OR EDUCATIONAL UNDER STATUTE OF STATE OF THE UNITED STATES OF AMERICA IF LOCATED IN THE UNITED STATES OF AMERICA
(NAME OF STATE)
(CITATION OF STATUTE)

I hereby declare that the above identified nonprofit organization qualifies as a nonprofit organization as defined in 37 CFR CFR 1.9 (d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, with regard to the invention described in the above-identified:

[ ] PATENT [x] APPLICATION

I hereby declare that rights under contract or law have been conveyed to and remain with the nonprofit organization identified above with regard to the above-identified invention.

If the rights held by the above identified nonprofit organization are not exclusive, each individual, concern or organization having rights to the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9 (d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9 (d) or a nonprofit organization under 37 CFR 1.9 (e).

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring their status as small entities. (37 CFR 1.27)

NAME
ADDRESS
[ ] INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

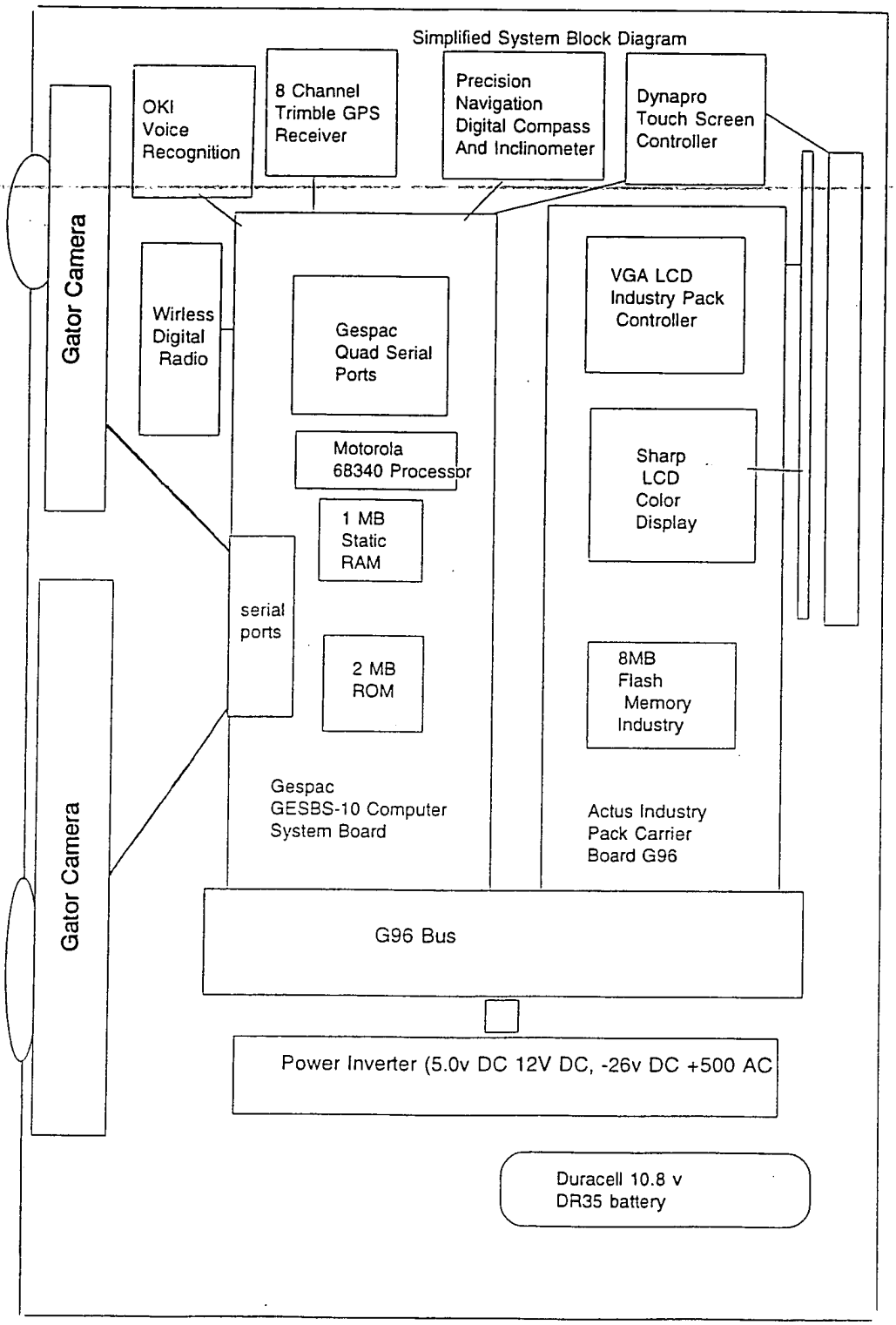
NAME
ADDRESS
[ ] INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change of status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28 (b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING Dr. Ronald M. Kudla
TITLE IN ORGANIZATION Director, Office of Technology Licensing
ADDRESS OF PERSON SIGNING 186 Grinter Hall
Gainesville, FL 32611

SIGNATURE Ronald M. Kudla DATE September 6, 1996


Simplified System Block Diagram
OKI Voice Recognition
8 Channel Trimble GPS Receiver
Precision Navigation Digital Compass And Inclinometer
Dynapro Touch Screen Controller
Gator Camera
Wirless Digital Radio
Gespac Quad Serial Ports
VGA LCD Industry Pack Controller
Motorola 68340 Processor
Sharp LCD Color Display
1 MB Static RAM
serial ports
2 MB ROM
8MB Flash Memory Industry
Gespac GESBS-10 Computer System Board
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Power Inverter (5.0v DC 12V DC, -26v DC +500 AC
Duracell 10.8 v DR35 battery

Figure 1

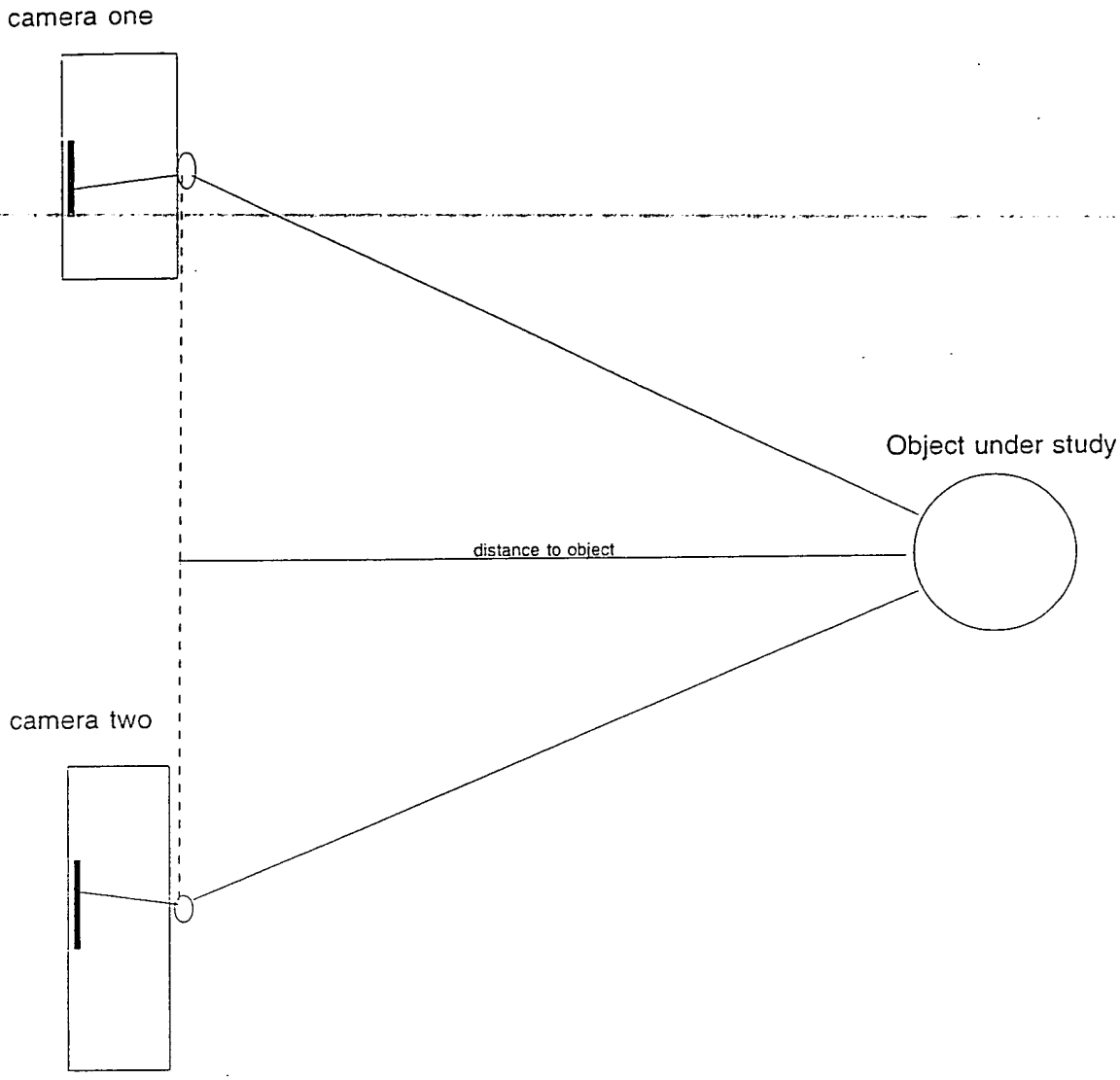
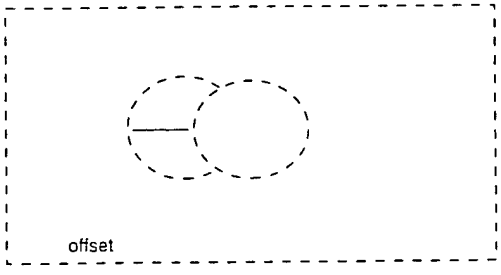
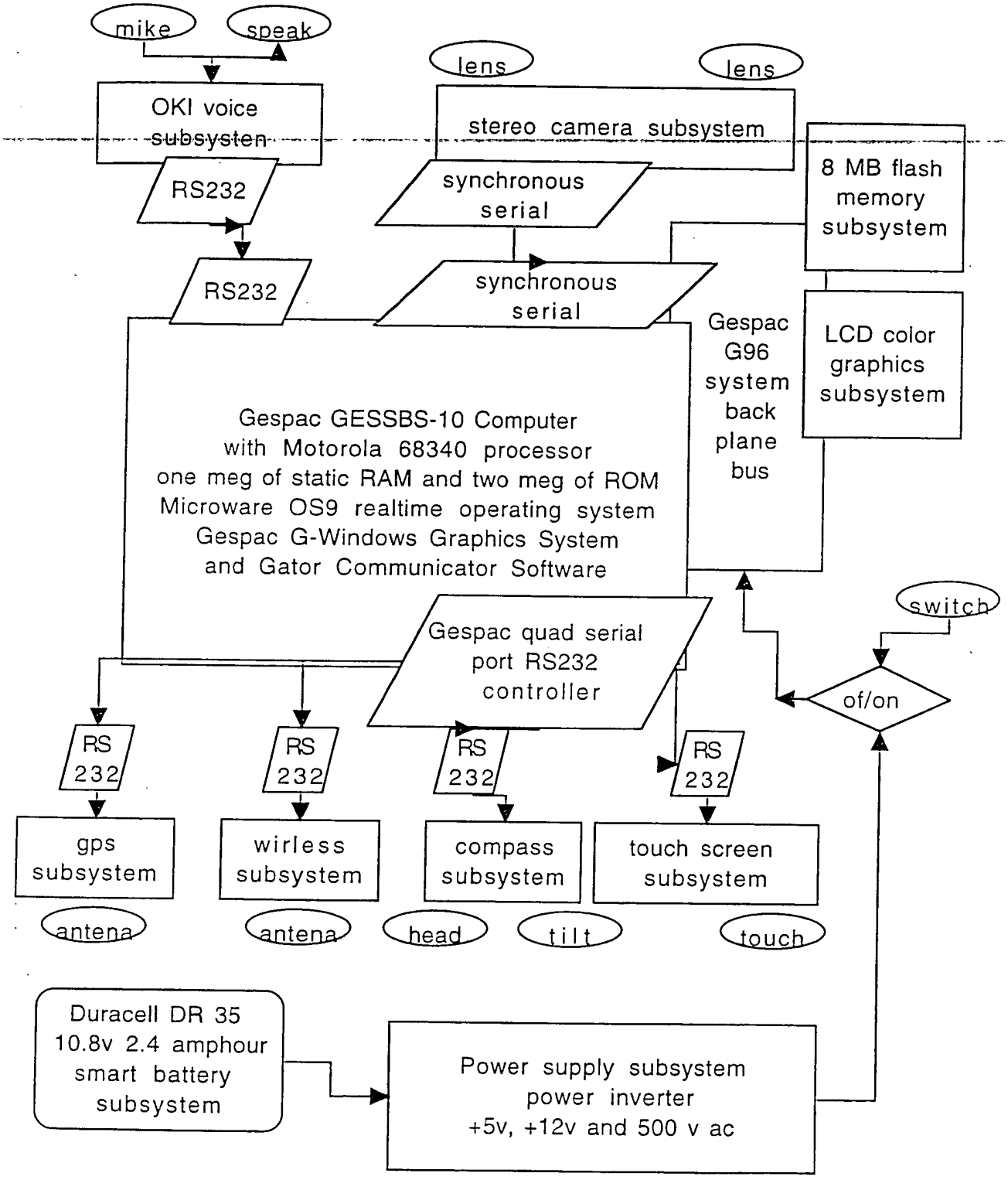


Diagram of stereo offset of
two images of same object



$$\text{distance} = \frac{k}{\text{offset}}$$

Figure 2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speak
OKI voice subsysten
RS232
RS232
lens
lens
stereo camera subsystem
synchronous serial
synchronous serial
8 MB flash memory subsystem
LCD color graphics subsystem
Gespac G96 system back plane bus
Gespac GESSBS-10 Computer
with Motorola 68340 processor
one meg of static RAM and two meg of ROM
Microware OS9 realtime operating system
Gespac G-Windows Graphics System
and Gator Communicator Software
Gespac quad serial port RS232 controller
switch
of/on
RS 232
RS 232
RS 232
RS 232
gps subsystem
wirless subsystem
compass subsystem
touch screen subsystem
antena
antena
head
tilt
touch
Duracell DR 35
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smart battery
subsystem
Power supply subsystem
power inverter
+5v, +12v and 500 v ac

Figure 3

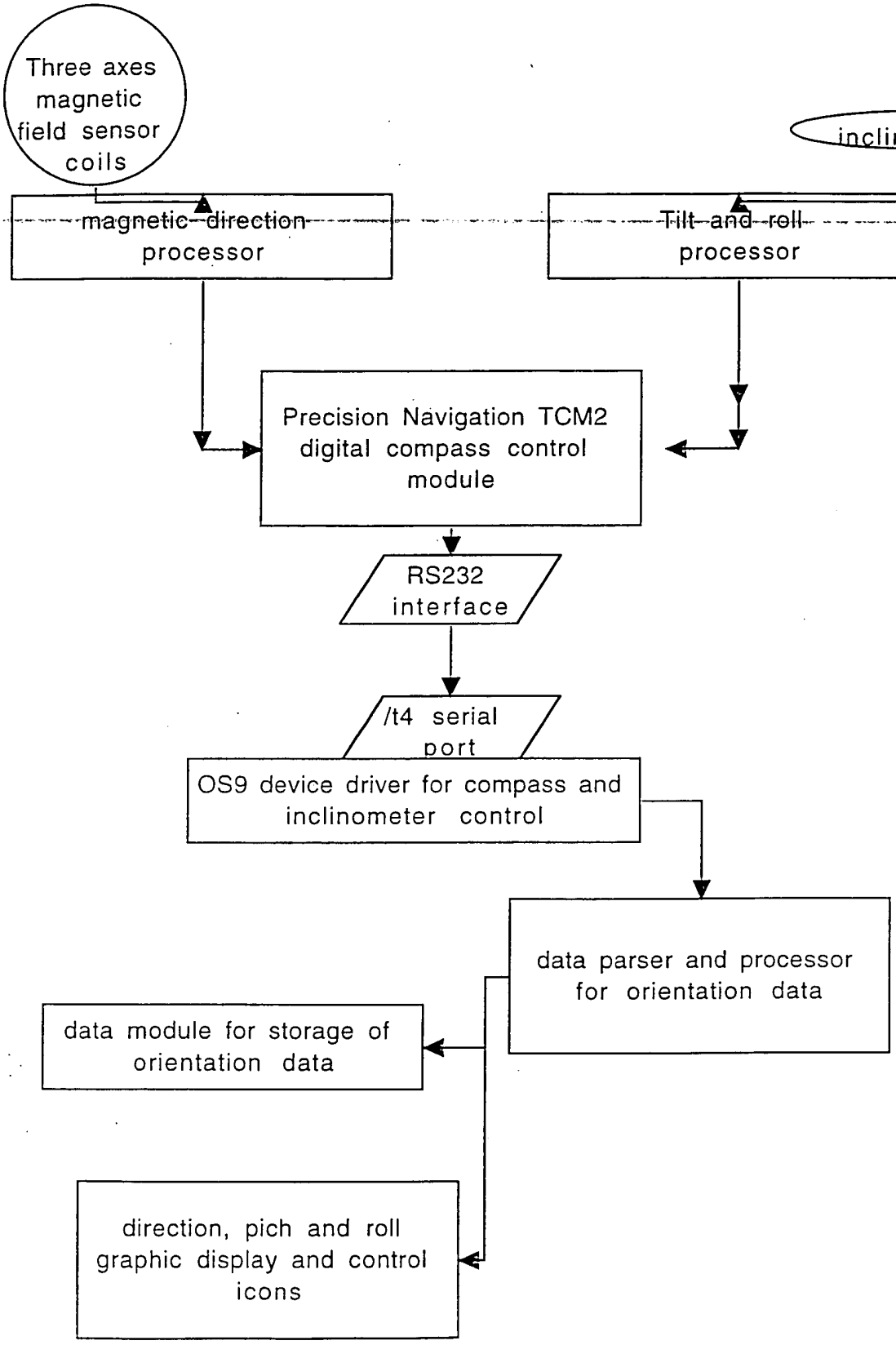
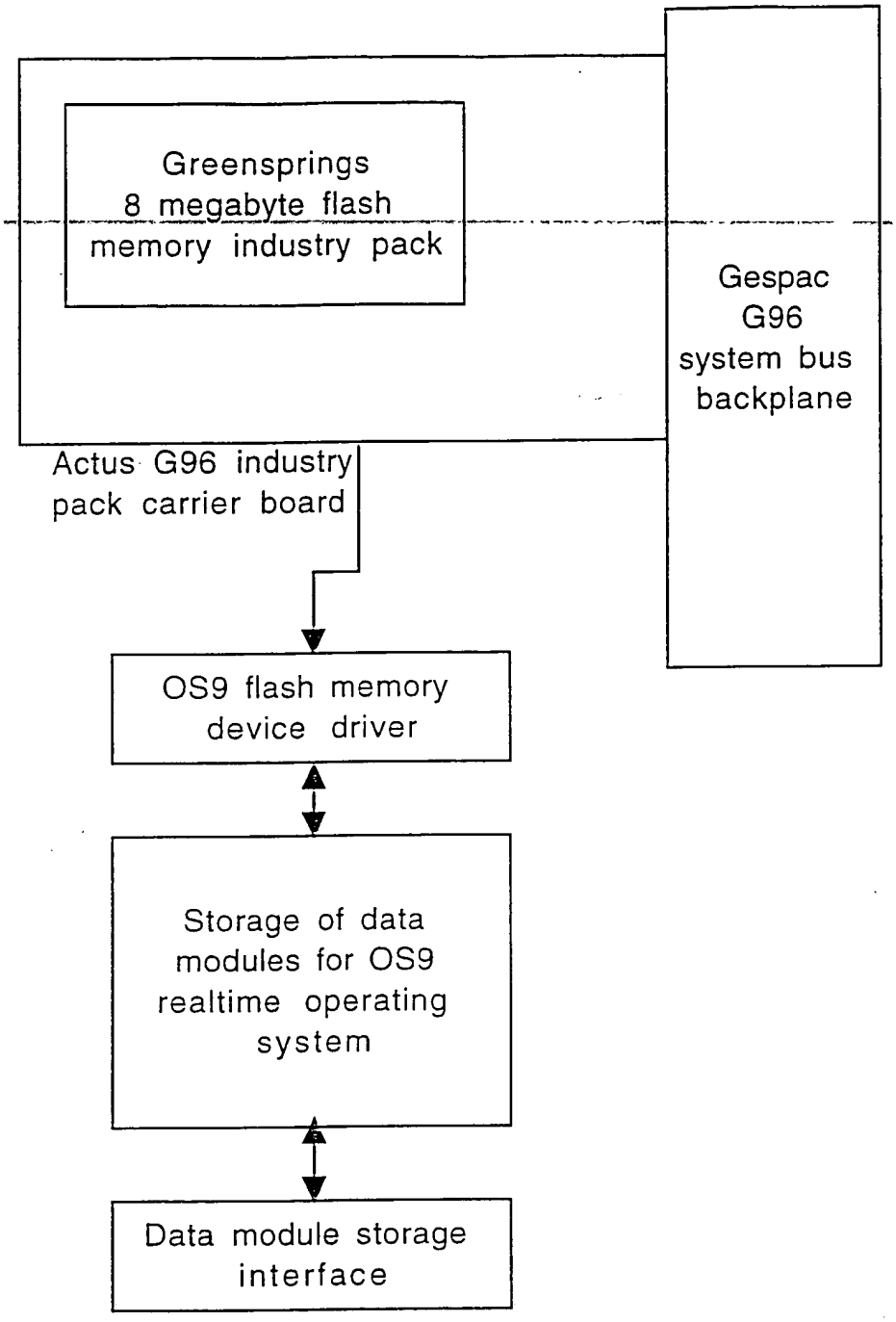

Three axes magnetic field sensor coils
inclinometer
magnetic direction processor
Tilt and roll processor
Precision Navigation TCM2 digital compass control module
RS232 interface
/t4 serial port
OS9 device driver for compass and inclinometer control
data parser and processor for orientation data
data module for storage of orientation data
direction, pich and roll graphic display and control icons

Figure 4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8 megabyte flash
memory industry pack
Gespac
G96
system bus
backplane
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pack carrier board
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device driver
Storage of data
modules for OS9
realtime operating
system
Data module storage
interface

Figure 5

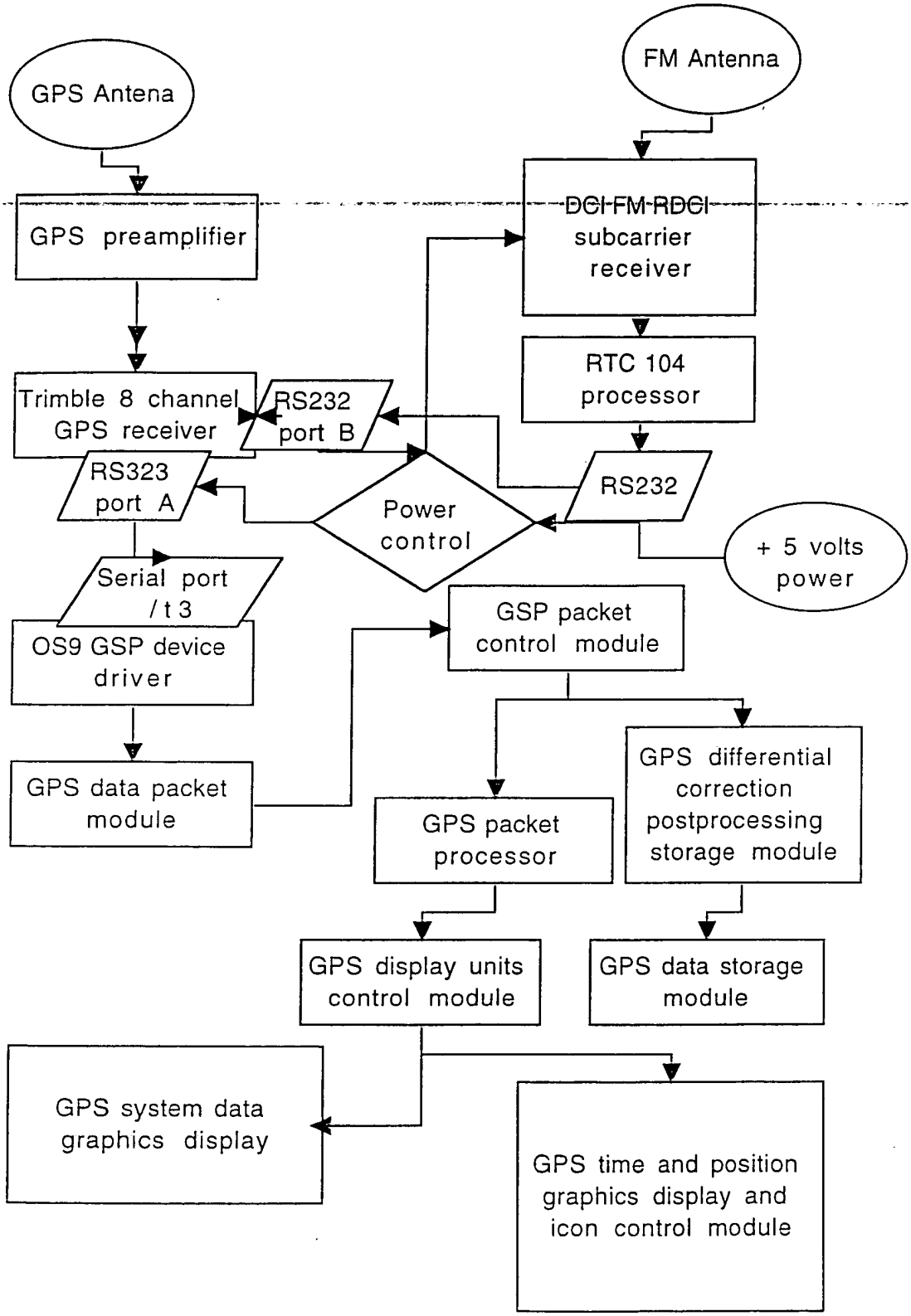
GPS Antena
FM Antenna
GPS preamplifier
DCI-FM-RDCI subcarrier receiver
RTC 104 processor
Trimble 8 channel GPS receiver
RS232 port B
RS323 port A
Power control
RS232
+ 5 volts power
Serial port /t3
OS9 GSP device driver
GSP packet control module
GPS data packet module
GPS packet processor
GPS differential correction postprocessing storage module
GPS display units control module
GPS data storage module
GPS system data graphics display
GPS time and position graphics display and icon control module

Figure 6

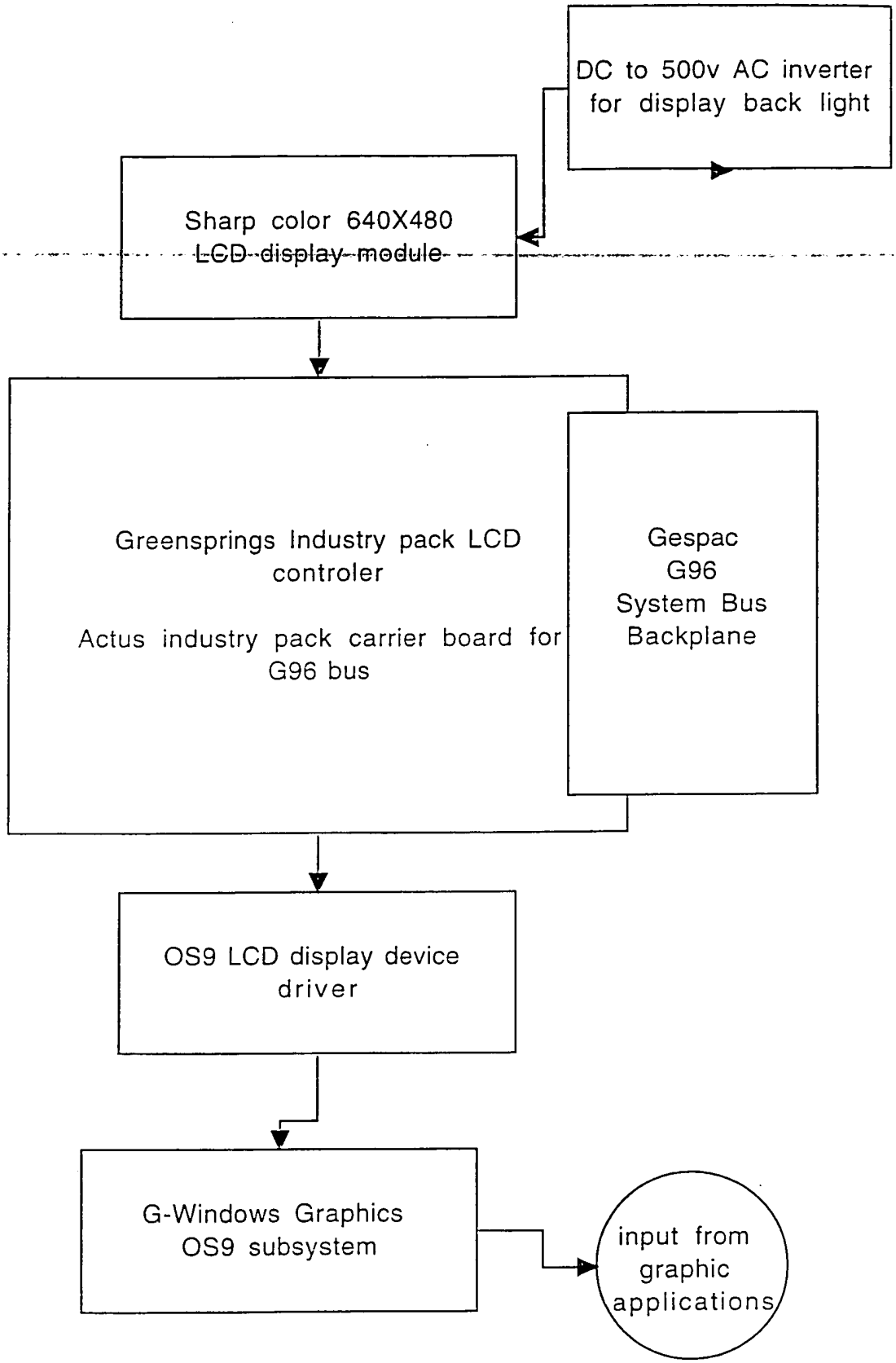
DC to 500v AC inverter for display back light
Sharp color 640X480 LCD display module
Greensprings Industry pack LCD controler
Actus industry pack carrier board for G96 bus
Gespac G96 System Bus Backplane
OS9 LCD display device driver
G-Windows Graphics OS9 subsystem
input from graphic applications

Figure 7

BAR CODE LABEL

U.S. PATENT APPLICATION

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT
60/025,528 PROVISIONAL	09/06/96		

APPLICANT

JOHN ALEXANDER, GAINESVILLE, FL.

CONTINUING DATA********
VERIFIED

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FOREIGN/PCT APPLICATIONS********
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FOREIGN FILING LICENSE GRANTED 11/09/96 ***** SMALL ENTITY *****

STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS	FILING FEE RECEIVED	ATTORNEY DOCKET NO.
FL	12			$75.00	UF-169P

ADDRESS

DAVID R SALIWANCHIK
SALIWANCHIK & SALIWANCHIK
2421 N W 41ST STREET SUITE A1
GAINESVILLE FL 32606-6669

TITLE

HANDHELD PORTABLE DIGITAL GEOGRAPHIC DATA MANAGER

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By authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

Date Certifying Officer